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# **2008 MICHIGAN FALL TURKEY HUNTER SURVEY**

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## **ABSTRACT**

*A survey of turkey hunters was conducted following the 2008 fall hunting season to determine turkey harvest and hunter participation. During the 2008 fall hunt, an estimated 16,300 hunters harvested about 5,000 turkeys. The number of people pursuing turkeys, their hunting effort and harvest did not change significantly from 2007. Hunter success was 31% in 2008 (versus 32% success in 2007). About 62% of the hunters in 2008 rated their hunting experience as excellent, very good, or good (versus 64% satisfaction in 2007).*

## **INTRODUCTION**

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to help maintain turkey populations at levels matching biological and social carrying capacities. In 2008, 12 management units totaling about 34,976 square miles were open for fall turkey hunting during October 8-November 14 (Figure 1). The area and units open for hunting turkey were the same as in 2007.

A person could purchase only one license for the fall turkey hunting season. People interested in obtaining a hunting license for the fall season could enter into a random license drawing conducted by the Department of Natural Resources (DNR). Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for all management units (Table 1). Licenses for units HA, HB, Q, T, and WA were valid on private lands only, while licenses for units G, GB, GC, J, L, M, and W



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were valid on either land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with their license.

The Natural Resources Commission and DNR have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are one of the management tools used to meet their statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

## **METHODS**

The DNR provided hunters the option to voluntarily report information about their turkey hunting activity via the internet. This option was advertised in the hunting regulations booklet, on the DNR website, and in an email message that was sent to licensees that had provided an email address to the DNR (5,195 people). Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and whether they harvested a turkey. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of the harvested bird. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults ( $\geq 1$  year old) (Kelly 1975). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2008 fall turkey hunting season, a questionnaire was sent to 5,064 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey licenses) and had not already voluntarily reported harvest information via the internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the internet.

Estimates were calculated using a stratified random sampling design that included 13 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (12 management units). Hunters that had voluntarily reported information about their hunting activity via the internet before the mail survey sample was selected were treated as a thirteenth stratum.

Because estimates were based on information collected from random samples of hunting license buyers, these estimates were subject to sampling errors (Cochran 1977). Thus, a 95% confidence limit (CL) was calculated for each estimate. In theory, this CL can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 995 out of 1,000 times, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during late November 2008, and up to two follow-up questionnaires were mailed to nonrespondents. Although 5,088 people were sent the questionnaire, 37 surveys were undeliverable resulting in an adjusted sample size of 5,051. Questionnaires were returned by 4,022 people, yielding an 80% adjusted response rate. In addition, 907 people voluntarily reported information about their hunting activity via the internet.

## RESULTS

In 2008, the DNR offered 59,050 licenses for sale, and hunters purchased 20,561 licenses for the fall turkey hunting season (Table 1). Licensees included 10,668 people that were successful in the drawing for a license and 211 applicants that were unsuccessful in the drawing. In addition to the applicants, 9,682 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2008 decreased 2% from 2007. In 2008, about 16,330 hunters spent 90,957 days afield pursuing turkeys ( $\bar{x}$  = 5.6 days/hunter) and harvested 4,996 birds (Table 2). The number of people pursuing turkeys in 2008 and their hunting effort did not change significantly from 2007. About 95% of the hunters that went afield were men ( $15,548 \pm 271$ ), and 5% of the hunters were women ( $782 \pm 121$ ). The average age of the license buyers was 48 years (Figure 2). About 6% of the license buyers were younger than 17 years old (1,195).

Hunter success was 31% in 2008, which was not significantly different from success in 2007. Furthermore, harvest in 2008 did not change significantly from 2007 (Figure 3). Allegan and Delta counties had 200 or more turkeys taken by hunters in 2008 (Table 3).

About 90% of turkey hunters hunted solely on private land, 6% hunted on public land only, and 3% hunted on both private and public lands (Table 4). Of the 4,996 turkeys harvested in 2008, 94% of these birds were taken on private land (4,706), while about 6% of the harvest (282) was taken on public land (Tables 5 and 6). Additionally, 8 birds were harvested from land of unknown ownership. About 58% of the harvested birds had a beard ( $2,880 \pm 271$ ). Most of these bearded birds (79%) were adults ( $2,283 \pm 188$ ); 20% were juvenile birds ( $565 \pm 96$ ).

Of the 16,330 turkey hunters in 2008, nearly  $62 \pm 2\%$  rated their hunting experience as either excellent ( $2,525 \pm 200$ ), very good ( $3,093 \pm 222$ ), or good ( $4,487 \pm 257$ ) (Table 7). About  $21 \pm 1\%$  of the hunters rated their experience as fair ( $3,355 \pm 231$  hunters), while  $15 \pm 1\%$  of the hunters rated their experience as poor ( $2,459 \pm 202$  hunters).

Additionally, about 3% of the hunters ( $410 \pm 90$  hunters) failed to rate their hunting experience. Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2007 and 2008, both hunter success (31% versus 32%) and satisfaction (62% versus 64%) were similar.

## **ACKNOWLEDGEMENTS**

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Figure 1. Management units open for fall turkey hunting in Michigan, 2008.

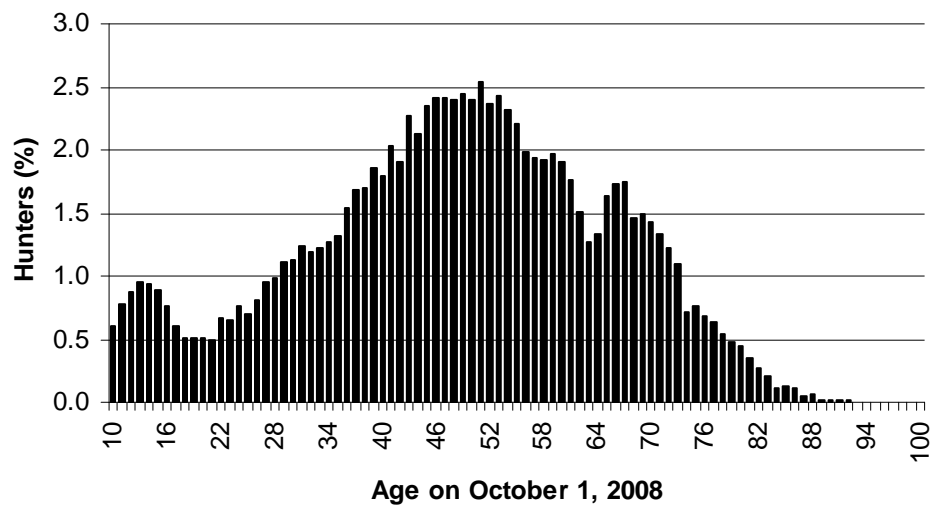


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2008 fall hunting season ( $\bar{x} = 48$  years). Licenses were purchased by 20,561 people.

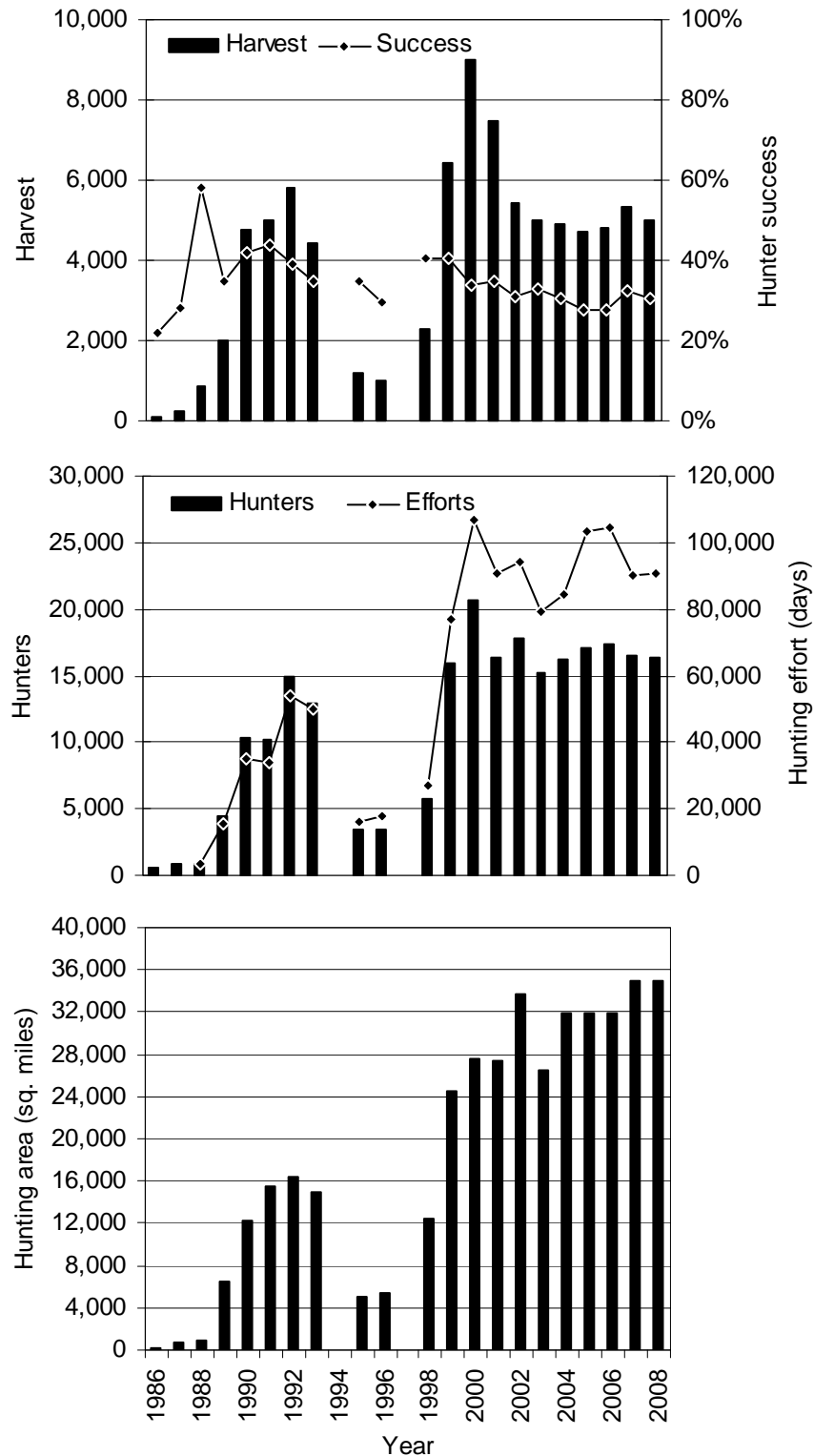


Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2008. Turkeys were not hunted during the fall in 1994 and 1997.

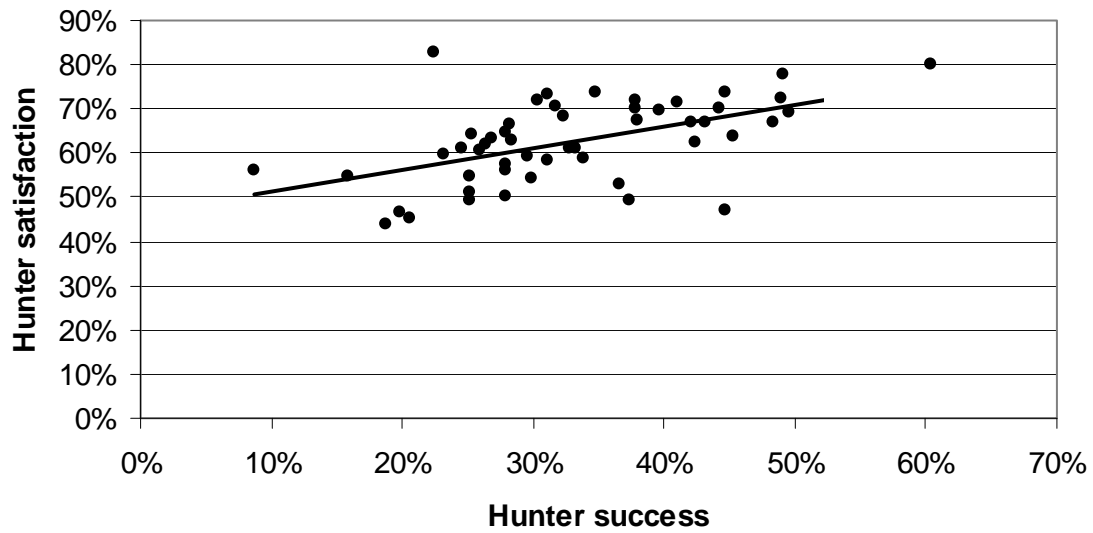


Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 51 counties in Michigan during the 2008 fall turkey hunting season (included only counties with at least 20 hunters).



Table 1. Number of hunting licenses available and people applying for licenses during the 2008 Michigan fall turkey hunting season.

Management unit	Licenses available (quota) <sup>a</sup>	Number of eligible applicants	Number of applicants successful in drawing	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants	Number of leftover licenses purchased by unsuccessful applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
G	7,200	1,413	1,228	5,972	838	46	972	1,856
GB	4,250	1,126	1,103	3,147	761	12	707	1,480
GC	6,200	2,843	2,324	3,876	1,578	129	1,965	3,672
HA <sup>b</sup>	1,100	954	954	146	707	1	129	837
HB <sup>b</sup>	600	382	382	218	262	0	163	425
J	2,000	1,328	1,328	672	846	6	474	1,326
L	21,000	2,415	2,415	18,585	1,703	8	2,556	4,267
M	8,500	821	821	7,679	584	0	1,061	1,645
Q <sup>b</sup>	3,000	2,460	2,460	540	1,536	3	485	2,024
T <sup>b</sup>	2,000	1,477	1,477	523	960	3	469	1,432
W	2,200	705	705	1,495	464	2	388	854
WA <sup>b</sup>	1,000	598	598	402	429	1	313	743
Statewide	59,050	16,522	15,795	43,255	10,668	211	9,682	20,561

<sup>a</sup>Quotas were assigned by hunts within each management unit.

<sup>b</sup>Licenses were valid on private lands only.

Table 2. Number of hunters, harvest, hunting success, and hunting efforts during the 2008 Michigan fall turkey hunting season.

Manage- ment unit	Hunters		Harvest		Hunting success		Hunting efforts (days)		Days per hunter ( $\bar{x}$ )	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	Mean	95% CL
G	1,523	63	431	68	28	4	8,926	880	5.9	0.5
GB	1,191	53	422	59	35	5	5,935	631	5.0	0.5
GC	2,959	131	803	134	27	4	16,423	1,743	5.6	0.5
HA <sup>a</sup>	656	29	234	31	36	4	3,370	324	5.1	0.4
HB <sup>a</sup>	348	14	108	16	31	4	1,854	177	5.3	0.5
J	1,001	52	300	49	30	5	5,690	609	5.7	0.5
L	3,293	159	912	153	28	4	19,751	2,054	6.0	0.6
M	1,297	61	555	70	43	5	7,373	707	5.7	0.5
Q <sup>a</sup>	1,543	74	435	69	28	4	8,898	883	5.8	0.5
T <sup>a</sup>	1,214	45	308	49	25	4	6,657	654	5.5	0.5
W	681	30	259	33	38	5	2,992	272	4.4	0.4
WA <sup>a</sup>	624	23	229	29	37	4	3,089	282	4.9	0.4
Statewide <sup>b</sup>	16,330	256	4,996	259	31	2	90,957	3,286	5.6	0.2

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide totals because of rounding errors.

Table 3. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2008 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Alger	137	41	657	280	32	21	23	13	60	15
Allegan	551	126	3,160	982	219	83	40	12	70	11
Antrim	232	45	1,408	378	65	25	28	9	66	10
Baraga	0	0	0	0	0	0	0	0	0	0
Barry	479	117	2,147	648	120	61	25	11	51	13
Bay	93	21	379	110	42	14	45	12	64	11
Berrien	295	96	2,018	920	111	61	38	16	72	15
Branch	217	83	1,204	600	55	41	25	17	49	20
Calhoun	333	101	1,661	616	95	55	28	14	63	15
Cass	186	77	1,078	620	42	37	22	18	83	16
Charlevoix	137	36	642	269	67	26	49	14	72	12
Cheboygan	183	41	1,247	379	82	29	45	12	47	12
Clinton	282	58	1,691	452	79	32	28	10	65	11
Delta	332	59	1,560	400	200	48	60	10	80	8
Dickinson	223	50	1,104	329	74	30	33	11	61	12
Eaton	233	54	1,125	333	65	30	28	11	58	12
Emmet	130	35	567	204	36	18	28	12	50	14
Genesee	276	58	1,606	498	104	37	38	11	70	10
Gogebic	5	8	9	16	0	0	0	0	100	0
Gratiot	222	53	1,414	457	62	29	28	11	56	13
Hillsdale	285	88	1,332	620	85	49	30	15	54	16

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2008 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Houghton	5	8	27	47	5	8	100	0	100	0
Huron	245	45	1,268	364	62	24	25	9	55	10
Ingham	378	100	1,577	548	155	65	41	14	71	13
Ionia	258	57	1,524	489	41	24	16	9	55	12
Iron	224	51	966	273	111	37	50	12	69	11
Isabella	270	34	1,275	222	99	23	37	7	53	8
Jackson	615	122	3,353	961	165	67	27	10	63	11
Kalamazoo	300	95	1,892	818	78	49	26	14	61	16
Kent	331	54	1,711	431	98	31	30	8	59	9
Lapeer	426	70	2,320	523	132	41	31	8	73	8
Lenawee	288	89	1,340	534	93	52	32	15	68	15
Livingston	391	100	2,139	739	103	52	26	12	62	13
Macomb	80	33	412	210	7	9	9	11	56	21
Marquette	99	35	642	292	43	23	43	18	67	17
Mecosta	348	14	1,854	177	108	16	31	4	59	5
Menominee	193	47	961	287	72	30	37	13	49	13
Midland	308	35	1,192	202	149	27	48	7	67	7
Montcalm	376	65	2,009	532	158	45	42	10	67	9
Muskegon	316	54	1,754	457	141	39	45	10	73	8
Newaygo	372	35	2,077	309	158	27	42	6	62	6
Oakland	173	47	994	324	55	27	32	13	71	13

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2008 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Oceana	194	30	880	166	74	19	38	8	67	8
Ontonagon	5	8	18	31	0	0	0	0	100	0
Otsego	242	46	1,113	300	50	22	21	8	45	10
Ottawa	328	55	1,433	334	161	41	49	9	78	8
Saginaw	390	31	1,941	268	172	26	44	6	70	5
St. Clair	393	68	2,148	536	119	40	30	9	72	9
St. Joseph	267	91	1,705	814	53	41	20	14	47	18
Sanilac	470	57	2,809	524	115	32	24	6	61	7
Schoolcraft	73	31	445	234	14	14	19	17	44	21
Shiawassee	316	91	2,245	895	110	54	35	14	74	13
Tuscola	401	55	2,125	436	131	35	33	8	61	8
Van Buren	352	102	2,114	957	119	61	34	14	59	15
Washtenaw	296	88	1,683	711	75	44	25	13	64	15
Unknown	2,506	208	13,001	1,584	135	48	5	2	52	4

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 4. Number and proportion of hunters hunting on private and public lands during the fall 2008 Michigan turkey hunting season.

Management unit	Private lands only				Public lands only				Both private and public lands				Unknown ownership			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
G	1,452	67	95	2	52	26	3	2	5	8	0	1	15	15	1	1
GB	1,105	58	93	3	65	27	5	2	17	14	1	1	4	7	0	1
GC	2,864	137	97	2	76	47	3	2	1	0	0	0	18	23	1	1
HA <sup>a</sup>	643	30	98	1	0	0	0	0	0	0	0	0	13	9	2	1
HB <sup>a</sup>	344	15	99	1	0	0	0	0	0	0	0	0	4	4	1	1
J	543	58	54	5	267	47	27	5	183	41	18	4	8	9	1	1
L	2,959	174	90	3	221	83	7	2	73	49	2	1	40	37	1	1
M	727	73	56	5	344	60	26	4	218	50	17	4	9	11	1	1
Q <sup>a</sup>	1,538	74	100	1	0	0	0	0	0	0	0	0	5	9	0	1
T <sup>a</sup>	1,203	46	99	1	0	0	0	0	0	0	0	0	12	11	1	1
W	655	31	96	2	21	11	3	2	0	0	0	0	5	6	1	1
WA <sup>a</sup>	622	23	100	1	0	0	0	0	0	0	0	0	2	4	0	1
Statewide <sup>b</sup>	14,653	275	90	1	1,046	128	6	1	496	83	3	1	135	52	1	0

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Number of hunters may not equal statewide totals because of rounding errors.

Table 5. Statewide turkey harvest during the 2008 Michigan fall turkey hunting season, summarized by land ownership type and turkey sex and age.

Land ownership Turkey sex and age	Harvest	
	Total	95% CL
Private lands		
Males	2,761	204
Juveniles	513	91
Adults	2,216	187
Unknown	32	19
Females	1,939	177
Unknown sex	5	8
Subtotal – Private lands <sup>a</sup>	4,706	254
Public lands		
Males	119	42
Juveniles	52	31
Adults	67	28
Unknown	0	0
Females	164	55
Unknown sex	0	0
Subtotal – Public lands <sup>a</sup>	282	68
Unknown lands	8	10
Grand total <sup>a</sup>	4,996	259

<sup>a</sup>Column totals may not equal subtotals and grand total because of rounding errors.

Table 6. Number of turkeys harvested on private and public lands during the 2008 Michigan fall turkey hunting season.

Management unit	Private lands		Public lands		Unknown ownership	
	Total	95% CL	Total	95% CL	Total	95% CL
G	419	68	12	12	0	0
GB	417	59	4	7	0	0
GC	785	133	18	23	0	0
HA <sup>a</sup>	234	31	0	0	0	0
HB <sup>a</sup>	108	16	0	0	0	0
J	234	45	62	25	4	7
L	858	149	54	41	0	0
M	418	64	132	40	5	8
Q <sup>a</sup>	435	69	0	0	0	0
T <sup>a</sup>	308	49	0	0	0	0
W	259	33	0	0	0	0
WA <sup>a</sup>	229	29	0	0	0	0
Statewide <sup>b</sup>	4,706	254	282	68	8	10

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide total because of rounding errors.

Table 7. How hunters rated their hunting experience during the 2008 Michigan fall turkey hunting season.

Management unit	Satisfaction level (% of hunters)					
	Excellent	Very good	Good	Fair	Poor	No answer
G	13	19	30	22	14	2
GB	17	23	26	20	12	2
GC	18	17	28	20	14	2
HA <sup>a</sup>	17	19	25	16	19	4
HB <sup>a</sup>	14	17	27	22	14	5
J	11	12	30	19	25	2
L	13	21	26	21	16	3
M	16	20	27	18	15	3
Q <sup>a</sup>	19	21	30	19	11	1
T <sup>a</sup>	14	20	24	23	17	2
W	17	16	27	27	11	3
WA <sup>a</sup>	15	17	31	19	15	2
Statewide	15	19	27	21	15	3

<sup>a</sup>Licenses were valid on private lands only.